

REMARKS

The Examiner is thanked for the due consideration given the application. This amendment is being filed concurrently with a Request for Continued Examination.

Claims 25-27, 29-35, 37-39 and 41-46 are pending in the application. Claim 36 is canceled without prejudice or disclaimer by this amendment. The claims have also been amended to improve their language.

No new matter is believed to be added to the application by this amendment.

Claim Objections

Claims 29, 36 and 46 have been objected to as containing informalities for failing to limit the subject matter of a previous claim. However, the instant claims have claims 29, 36 and 46 limiting the subject matter of a previous claim.

Rejection Under 35 USC § 112, Second Paragraph

Claims 25, 29-31, 34, 41 and 44 have been rejected under 35 USC § 112, second paragraph as being indefinite. This rejection is respectfully traversed.

The comments in the Official Action have been considered, and the claims have been amended to be clear, definite and have full antecedent basis. For example, the amended claims show all essential cooperative relationship of elements, do not show intended use and have full antecedence.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Rejections Based on KREUZER et al.

Claims 25, 26, 29, 30, 32, 33, 34, 35, 37, 38, 42, 43, 44 and 45 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. (U.S. Patent 4,937,449) in view of PREIKSCHAT et al. (U.S. Patent 4,871,251). Claims 27 and 39 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. in view of PREIKSCHAT et al., and further in view of KOBAYASHI et al. (U.S. Patent 5,245,671). These rejections are respectfully traversed.

The present invention pertains to an optical measurement and inspection arrangement that is illustrated, by way of example, in Figure 5 of the application, which is reproduced below.

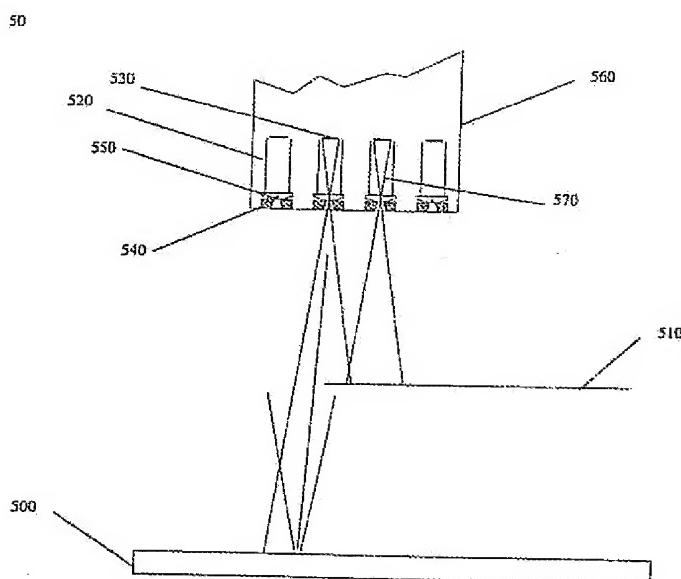


Fig 5.

Figure 5 shows light detectors 570 in detector module 560. Each detector can have a field of view that can overlap with an adjacent detector.

In the present invention, the focal spot does not oscillate. In the present invention, there are no mechanically moving parts in the measurement system, apart from the traversing sheet to be measured. In the present invention, both the light emitter and the receiver are electronic and are driven with an electronic synchronization signal.

Another aspect of the present invention is the utilization of a common carrier waveform AC voltage signal having a fixed frequency, and a symmetrical 50% duty cycle square wave signal is processed from a common carrier waveform signal and carries equal frequency and phase in terms of zero crossings.

Independent claim 25 of the present invention recites: "fixing a common carrier waveform AC voltage signal in frequency, and a symmetrical 50% duty cycle square wave signal is processed from the common carrier AC voltage waveform signal and the common carrier waveform AC voltage signal and the 50% duty cycle wave signal carry equal frequency and phase in terms of zero-crossings," and "the symmetrical wave signal, processed from the common carrier waveform signal, is configured for rectifying photocurrent signal, removing at least one DC component is removed from the photocurrent signal." Independent claim 37 of the present invention includes similar recitations.

KREUZER et al. pertain to a device for the inspection of the quality of preferably sheet-shaped uncoated or coated films by optoelectronic means. The Official Action refers to Figure 1 or KREUZER et al., which is reproduced below.

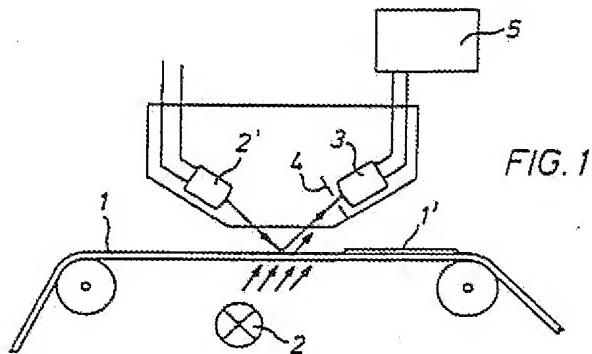


Figure 1 of KREUZER et al. shows light sources 2, 21 and a receiver 3. The Official Action refers to columns 3 and 4 of KREUZER et al. which frequency modulation and signal amplification.

However, the present invention differs from KREUZER et al. in that:

- 1) the common carrier waveform AC voltage signal is fixed in frequency, and a symmetrical 50% duty cycle square wave signal, is processed from the common carrier waveform signal and carries equal frequency and phase in term of zero-crossings,
- 2) at least two rays of light are converted to photocurrent (240), and the symmetrical wave signal, processed from the common carrier waveform signal is used for rectifying photocurrent signal, and

3) at least one DC component is removed from the photocurrent signal.

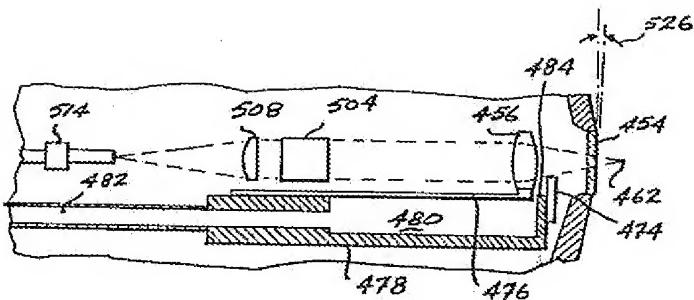
The problem solved by these features is to reduce the noise, i.e., loudness, caused by unwanted light emitters in the receiver, and correspondingly increase the signal of desirable light emitters in the light receiver.

The present invention solves this problem by offering an arrangement where the photocurrent detecting faults and properties of the material sheet in the optical system is rectified with a signal that has the same frequency and phase as the carrier frequency that drives the emitter and the receiver.

The noise problem is not disclosed or inferred in KREUZER et al. Neither is it apparent from any other publication.

The Official Action acknowledges that KREUZER et al. fail to disclose forming a common carrier waveform AC voltage signal in frequency and a symmetrical 50% duty cycle square wave signal processed therefrom used for rectifying the photocurrent signal. The Official Action refers to PREIKSCHAT et al. for these teachings.

PREIKSCHAT et al. pertain to analyzing particles in a fluid medium. PREIKSCHAT et al. provide an intrinsically safe particle counting system that does not include any electrical components (end of Abstract). The Official Action refers to column 18 of PREIKSCHAT et al., which describes Figure 17 of the patent, which is reproduced below.



In this system the sync generator produces pulses having leading edges that exactly correspond to the turn around point in the motion of the lens 456. (Column 18, lines 25-30). Pneumatic means may be used to cause the focal spot to oscillate. The detection means is synchronized to the pneumatic oscillation of the focal spot. (Column 3, lines 35-45).

In contrast, the focal spot does not oscillate in the present invention. The present invention has no mechanically moving parts in the measurement system, apart from the traversing sheet to be measured. In the present invention, both the light emitter and the receiver are electronic and are driven with an electronic synchronization signal.

As a result, the Official Action is changing the principal of operation of the applied art, thus making the reference unsuitable for their intended purpose.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). If

the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

That is, in the present invention both the light emitter and the receiver are electronic and are driven with an electronic synchronization signal. One skilled in the art would not turn to an embodiment that specifically lists no electronic components starting from KREUZER et al. and in pursuit of the solution that the present invention solves. Even if one did, there would be no place in KREUZER et al. to put the synchronization signal of PREIKSCHAK et al., because there are no "non-electronic embodiments" in KREUZER et al., and there are no moving lenses in KREUZER et al.

There is thus no teaching, suggestion or motivation to combine KREUZER et al. and PREIKSCHAK et al., and even their combination does not lead to the present invention.

Although the Supreme Court in *KSR International Co. v. Teleflex Inc. (KSR)* cautioned against an overly rigid application of teaching-suggestion-motivation (TSM) rationale, it also recognized that TSM was one of a number of valid rationales that could be used to determine obviousness. (According to the Supreme Court, establishment of the TSM approach to the question of obviousness "captured a helpful insight." *KSR International Co. v. Teleflex Inc.*, 550 U.S. at ___, 82 USPQ2d at 1396 (2007)

(citing *In re Bergel*, 292 F.2d 955, 956-57, 130 USPQ 206, 207-208 (1961)). See also *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc.*, No. 05-1631, 485 F.3d 1157, (Fed. Cir. May 9, 2007).

With regards to claims 27 and 39, the Official Action acknowledges that KREUZER et al. fail to disclose the three-dimensional structure of a defect is detected with more than one beam. The Official Action turns to KOBAYASHI et al.

However, the teachings of KOBAYASHI et al. fail to address the deficiencies of KREUZER et al. and PREIKSCHAK et al. discussed above.

One of ordinary skill and creativity would fail to produce a claimed embodiment of the present invention from knowledge of KREUZER et al. and PREIKSCHAK et al. (and KOBAYASHI et al.), and a *prima facie* case of unpatentability has thus not been made.

These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

CONCLUSION

The Examiner is thanked for considering the Information Disclosure Statement filed August 2, 2005 and for making an initialed PTO-1449 form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The objections and rejections are believed to have been overcome, obviated or rendered moot, and no issues remain. The

Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Robert E. Goozner, Reg. No. 42,593
Customer No. 00466
209 Madison Street, Suite 500
Alexandria, VA 22314
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

REG/jr